WM955-10 Emerging Digital Technologies

20/21

Department
> WMG
Level
> Taught Postgraduate Level
Module leader
> Michael Mortenson
Credit value
> 10
Module duration
> 1 week
Assessment
> 100% coursework
Study location
> University of Warwick main campus, Coventry

Description

Introductory description

This module aims to address the acceleration in the development and introduction of technology, and show how emerging technologies can be applied to different industries and business contexts. The module will offer crucial, advanced theoretical and practical technological foundations to eBusiness Management students.

The development and understanding of technological step changes
can provide significant advantages to organisations and give them
an edge over competitors, particularly for eBusinesses and companies in the digital space. For such companies, the ability to identify and assimilate new technologies into their business model can be the difference between success and extinction.

This module provides an advanced and comprehensive look at current and future technological trends. It explores how current market leaders use technology to their advantage by providing a broad understanding of computing methods and infrastructures, new digital solutions, and applications such as artificial intelligence by forming an in-depth knowledge of "the art of the possible", while preparing students for future technological change. This module will equip the student with the right skills to both explore new technologies, and explore their potential exploitations.

In particular, this module will consider the emerging technology landscape covering technologies such as: artificial intelligence, cloud computing, VR/AR, Blockchain, cryptocurrencies, virtual assistants, and cyber security. We will seek to engage with WMG researchers such as those working in automation and robotics to incorporate the latest work in these fields.

In addition to introducing students to the technologies themselves, the module aims to enable participants to recognise the opportunities and challenges that emerging technologies may bring, and identify use-cases and industries that could face disruption from new technologies.

Module aims

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Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

1. Evaluating emerging technologies
    a. The technology hype cycle
    b. Exploration and exploitation of new technologies
    c. Digital disruption
    d. Industry analysis and market research

2. High Performance Computing and Artificial Intelligence
    a. Big data and artificial intelligence
    b. Cloud computing
    c. Internet of things and mobile technologies
    d. Blockchain
    e. Cryptocurrencies and quantum computing

3. Visualisation and Collaboration
    a. Virtual and augmented reality
    b. Robotics and virtual assistants
    c. Crowd sourcing

"Evaluating emerging technologies" aims to provide students with the fundamentals, techniques and patterns for evaluating the appropriacy of technologies to specific industries and contexts, and assessing their impact. This includes developing an appreciation for technology hype cycles, and the paired cycles of exploration and exploitation (particularly in a vendor and/or consultancy context). Additionally participants will explore the key factors that enable digital disruption, as well as the impacts it may bring.

"High performance computing and artificial intelligence" focuses on the new architectures, technologies and patterns that underpin big data and cloud computing. This includes key topics such as internet of things, mobility, and cryptocurrencies.

Finally, "visualisation and collaboration" focuses on the interface between technology and human perception/collaboration. This incorporates the use of VR/AR, robotics, virtual assistants, and web 2.0 concepts such as crowd sourcing and e-collaboration.

Case studies, practical workshops and syndicate work will underpin the theoretical knowledge of some of the presented technologies.

Learning outcomes

By the end of the module, students should be able to:

- Interpret and evaluate critical digital technologies and their application in various industries
- Demonstrate practical competence with selected types of digital technology
- Appraise the theory and concepts behind the technical deployments of emerging digital technologies.
- Evaluate and implement new and emerging digital technologies to specific business contexts.
- Interpret and evaluate current technological limitations and demonstrate how to future proof know-how.

Indicative reading list

Anderson R (2008). Security Engineering: A Guide to Building Dependable Distributed Systems, 2nd Edition. Hoboken, NJ: John Wiley & Sons. ISBN-13: 978-0470068526
Birch D (2017). Before Babylon, Beyond Bitcoin: From Money that We Understand to Money that

Understands Us. London: London Publishing Partnership.

Floyd TL (2013). Digital Fundamentals, 10th Edition. London: Pearson. ISBN-13: 978-0132359238.

Gilchrist A (2016). Industry 4.0: The Industrial Internet of Things. New York, NY: Apress. ISBN-13: 978-1484220467.

Hennig, N (2017), Keeping Up with Emerging Technologies: Best Practices for Information Professionals. Libraries Unlimited. ISBN-13: 978-1440854408

Kavis MJ (2014). Architecting the Cloud: Design Decisions for Cloud Computing Service Models (SaaS, PaaS, and IaaS). Hoboken, NJ: John Wiley & Sons. ISBN-13: 978-1118617618

Kim G, Behr K and Spafford G (2013). The Phoenix Project: A Novel about It, Devops, and Helping Your Business Win. IT Revolution Press. ISBN-13: 978-0988262591

Mayer-Schönberger V and Cukier K (2013). Big Data – A Revolution That Will Transform How We Live, Think and Work. London: John Murray. ISBN-13: 978-184854790

Tanenbaum AS and Van Steen M (2006). Distributed Systems: Principles and Paradigms, 2nd Edition. London: Pearson. ISBN-13: 978-1530281756

[View reading list on Talis Aspire](#)

Subject specific skills

Digital transformation, big data, digitalisation, emerging technologies, Blockchain, 3D printing, IIoT, Crowdsourcing, Cloud

Transferable skills

Technology analysis, virtual teams, team working

Study

Study time

Type	Required
Lectures	13 sessions of 1 hour 30 minutes (19%)
Seminars	9 sessions of 1 hour 30 minutes (13%)
Other activity	67 hours (67%)
Total	100 hours

Private study description

No private study requirements defined for this module.

Other activity description

Students will be expected to complete 7 hours of pre-work, based on case studies.

60 hours of self-directed study (post-module assignment).

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A1

	Weighting	Study time	Eligible for self-certification
Assessment component			
Assessed work as specified by department	100%		No
4000 Words Post Module (70%) and In module Assessment (30%)			
Reassessment component			
Assessed work as specified by department			Yes (extension)
100% Post Module Assessment			

Feedback on assessment

In module work will have feedback provided verbally after assessment.
PMA – individual notes attributed to each script returned to each student with bespoke feedback.

Availability

Anti-requisite modules

If you take this module, you cannot also take:

- WM948-15 Emerging Technologies for Business

There is currently no information about the courses for which this module is core or optional.